### IAP12 Rec'd PCT/PTO 28 APR 2006

**PATENT** 

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE (Case No. 06-275)

In re A	Application of:	)
	Crabtree et al.	) Examiner: TBD
Serial	No.: TBD	) Art Unit: TBD
Filed:	April 28, 2006	)
For:	PROCESS FOR THE PRODUCTION OF LACTAMS	) ) )

#### INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Dear Sir:

Pursuant to the duty of disclosure provided by 35 C.F.R. § 1.56 and §§ 1.97-98, the applicants wish to make the following references of record in the above-identified application. Copies of the non-patent references are enclosed. Copies are also listed in the PTO/SB/08B form enclosed herewith. It is requested that the documents be given careful consideration and that they be cited of record in the prosecution history of the present application so that they will appear on the face of the patent issuing from the present application.

Portions of the references may be material to the examination of the pending claims, however no such admission is intended. 37 C.F.R. 1.97 (h). The references have not been reviewed in sufficient detail to make any other representation and, in particular, no representation is intended as to the relative importance of any portion of the references. This Statement is not a representation that the cited references have effective dates early enough to be "prior art" within

the meaning of 35 U.S.C. sections 102 or 103, nor is this submission to be construed as a representation that a search has been made.

#### **CITED REFERENCES**

#### **U.S. Patents**

	Patent Number	Name of Patentee	<u>Date</u>
1.	2,351,939	Drossbach et al.	06-20-1944
2.	2,843,600	McKeever	07-15-1958
3.	3,080,377	Liao	03-05-1963
4.	3,109,005	Lidov	10-29-1963
5.	3,637,743	Prince	01-25-1972
6.	3,957,827	Lyons	05-18-1976
7.	4,263,175	Pesa et al.	04-21-1981
8.	4,356,124	Pesa et al.	10-26-1982
9.	4,485,245	Hsu et al.	11-27-1984
10.	4,485,246	Lyons	11-27-1984
11.	4,892,955	Wada et al.	01-09-1990
12.	4,931,573	Wada et al.	06-05-1990
13.	5,021,589	Wada et al.	06-04-1991
14.	5,047,561	Miyazawa et al.	09-10-1991
15.	5,077,442	Hara et al.	12-31-1991
16.	5,079,372	Wada et al.	01-07-1992
17.	5,434,273	Weyer et al.	07-18-1995
18.	5,580,991	Sugiyama et al.	12-03-1996

19.	5,912,358	Frohn et al.	06-15-1999

20. 6,008,375 Bergfeld et al. 12-28-1999

#### **Foreign Patents**

	Patent Number	Name of Patentee	<u>Date</u>
21.	GB 976,939	Himmele et al.	12-02-1964
22.	GB 2 055 798 A	Sweeney	03-11-1981
23.	WO 96/23803 A1	Beatty et al.	08-08-1996
24.	WO 02/102772 A1	Werpy et al.	12-27-2002
25.	WO 03/093208 A1	Kilner et al.	11-13-2003
26.	JP 02-075716	Reichle et al.	03-15-1990
27.	JP 02121976 A	Hara	05-09-1990
28.	JP 02200680 A	Wada et al.	08-08-1990
29.	JP 02207081 A	Miyazawa et al.	08-16-1990
30.	JP 02233674 A	Miyazawa et al.	09-17-1990
31.	JP 02235880 A	Miyazawa et al.	09-18-1990
32.	JP 03074377 A	Miyazawa et al.	03-28-1991
33.	JP 03083974 A	Miyazawa et al.	04-09-1991
34.	JP 03112973 A	Otake et al.	05-14-1991
35.	JP 03141273 A	Miyazawa et al.	06-17-1991
36.	JP 03204870 A	Otake et al.	09-06-1991
37.	JP 04091085 A	Miyazawa et al.	03-24-1992
38.	JP 04217636 A	Hara et al.	08-07-1992
39.	JP 06107654 A	Fuchigami et al.	04-19-1994
40.	JP 06172338 A	Koga et al.	06-21-1994

### IAP12 Rec'd PCT/PTO 28 APR 2006

41. JP 07033756 A Koga et al. 02-03-1995

42. JP 07082260 A Sato et al. 03-28-1995

#### Other Documents

- 43. H. Inagaki, S. Nishimura, Y. Hara, K. Wada, "Hydrogenation Reaction of Carbonyl Compounds Catalyzed by Cationic Ruthenium Complexes," Science and Technology in Catalysis 1994, pp. 327-330.
- 44. Y. Hara, K. Wada, "Hydrogenation Reaction of Carboxylic Anhydrides Catalyzed by a New and Highly Active Cationic Ruthenium Complex," Chemistry Letters 1991, pp. 553-554.
- 45. R.A. Grey, G.P. Pez, A. Wallo, "Anionic Metal Hydride Catalysts. 2. Application to the Hydrogenation of Ketones, Aldehydes, Carboxylic Acid Esters, and Nitriles," Journal of the American Chemical Society 1981, No. 103, pp. 7536-7542.
- 46. U. Matteoli, G. Menchi, M. Bianchi, F. Piacenti, "Homogeneous Catalytic Hydrogenation of the Esters of Bicarboxylic Acids –Part III. EthyleneGlycol from Dimethyl Oxalate," Journal of Molecular Catalysis, No. 44, 1988, pp. 347-355.
- 47. U. Matteoli, G. Menchi, M. Bianchi, F. Piacenti, S, Ianelli, M. Nardelli, "Structure and Catalytic Activity of Phosphine-substituted Ruthenium Carbonyl Carboxylates," Journal of Organometallic Chemistry," Vol. 498, 1995, pp. 177-186.
- 48. H. Teunissen, C.J. Elsevier, "Ruthenium Catalysed Hydrogenation of Dimethyl Oxalate to Ethylene Glycol," Chemical Communications, 1997, pp. 667-668.
- 49. H.T. Teunissen, C.J. Elsevier, "Homogeneous Ruthenium Catalyzed Hydrogenation of Esters to Alcohols, Chemical Communications, 1998, pp. 1367-1368.

Respectfully submitted,

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By:

James T. Wasciak

Registration No. 50,803

Date: April 28, 2006

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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number. Substitute for form 1449A/PTO Complete if Known Application No. **TBD** Filing Date: INFORMATION DISCLOSURE April 28, 2006 STATEMENT BY APPLICANT **First Named Inventor** Simon Peter Crabtree **Group Art Unit TBD** (use as many sheets as necessary) **Examiner Name TBD** 

Attorney Docket No.

3

Examiner	Cite	ite U.S. Patent Document			Date of Publication of	Pages, Columns, Lines
Initials*	No.	Number	Kind Code <sup>2</sup> (if known)	Name of Patentee or Applicant of Cited Document	Cited Document MM-DD-YYYY	Where Relevant Passages or Figures Appear
	1.	2,351,939		Drossbach et al.	06-20-1944	
	2.	2,843,600		McKeever	07-15-1958	
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<sup>\*</sup>EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>&</sup>lt;sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English translation is attached.

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Sheet	2	of	3	Attorney Docket No.	06-275

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	30.	JP	02233674	A	Miyazawa et al.	09-17-1990	-	
	31.	JP	02235880	Α	Miyazawa et al.	09-18-1990		Г
	32.	JP	03074377	Α	Miyazawa et al.	03-28-1991		
	33.	JP	03083974	Α	Miyazawa et al.	04-09-1991		Γ
	34.	JP	03112973	Α	Otake et al.	05-14-1991		
	35.	JP	03141273	Α	Miyazawa et al.	06-17-1991		
	36.	JP	03204870	A	Otake et al.	09-06-1991		
	37.	JP	04091085	A	Miyazawa et al.	03-24-1992		
	38.	JP	04217636	Α	Hara et al.	08-07-1992		
	39.	JP	06107654	Α	Fuchigami et al.	04-19-1994		
	40.	JP	06172338	Α	Koga et al.	06-21-1994		T
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OTHER DOCUMENTS NON PATENT LITERATURE DOCUMENTS									
Examiner Initials*	Cite No.	Include name of author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>						
	43.	H. Inagaki, S. Nishimura, Y. Hara, K. Wada, "Hydrogenation Reaction of Carbonyl Compounds Catalyzed by Cationic Ruthenium Complexes," Science and Technology in Catalysis 1994, pp. 327-330.							
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